2752

Service Manual

NATIONAL
STEREO
Panasonic

Original

COMBINATION OF SS-7000A STEREO SYSTEM

RECEIVER SA-700A

AUTOMATIC TURNTABLE SL-700A

SPEAKER SYSTEM SB-150D

MODEL SS-7000A

SPECIFICATIONS

AMPLIFIER SECTION

Power Output :	80 Watts (PMPO) in Quadruplex 45 Watts (IHF) in Quadruplex
Power Bandwidth :	10 Hz to 40,000 Hz (–3 dB CPO. 5%)
Input Sensitivity and Impedance (for rated output) :	
PHONO 1 (Moving Magnetic)	3mV 50 Kohms 60 dB
PHONO 2 (Ceramic)	150mV 50 Kohms 60 dB
TAPE (REC)	500mV 100 Kohms 70 dB
Output :	
TAPE (REC)	100mV 5 Kohms
(DIN)	30mV 80 Kohms
Bass Range :	11 dB at 100 Hz
Treble Range :	11 dB at 10 kHz
Damping Factor :	20 at 8 ohms
Loudness control :	+8 dB (100 Hz) +4 dB (10 kHz)

FM TUNER SECTION

FM Usable Sensitivity (IHF) :	2.5 μV ±3 dB IHF
FM Harmonic Distortion (at 400 Hz, 100% modulation) :	Less than 0.4%
Signal to Noise Ratio :	55 dB 100% 60 dB
FM Stereo Separation (at 1 kHz) :	38 dB
Capture Ratio (IHF) :	2.5 dB

AM TUNER SECTION

AM Sensitivity (IHF) :	18 μV ±3 dB 500 V/m

RECORD PLAYER SECTION

Turntable :	11" Automatic turntable
Motor :	4-pole Outer rotor synchronous
Cartridge :	Moving Magnetic type
Stylus :	Diamond

SPEAKER SECTION

System :	2-way 2-speaker
Woofer :	6 ½" Hi-compliance Cone-type
Tweeter :	2" Horn-type
Impedance :	8 ohms

DIMENSIONS (W × H × D)

Receiver :	18 7/16" × 5 7/8" × 14 7/16"
Turntable :	18 7/16" × 7 5/8" × 13 3/4"
Speaker :	11 3/16" × 18 3/8" × 6 3/4"

WEIGHT

Receiver :	18, 12 lb
Turntable :	15.7 lb
Speaker :	9.15 lb (each)
POWER SUPPLY :	100~115, 115~130, 200~225, 225~250 AC 60 Watts

MATSUSHITA ELECTRIC
MATSUSHITA ELECTRIC TRADING CO., LTD.
P. O. Box 288, Central Osaka, Japan

ORDER NO. SD-298

2752

LOCATION OF PARTS

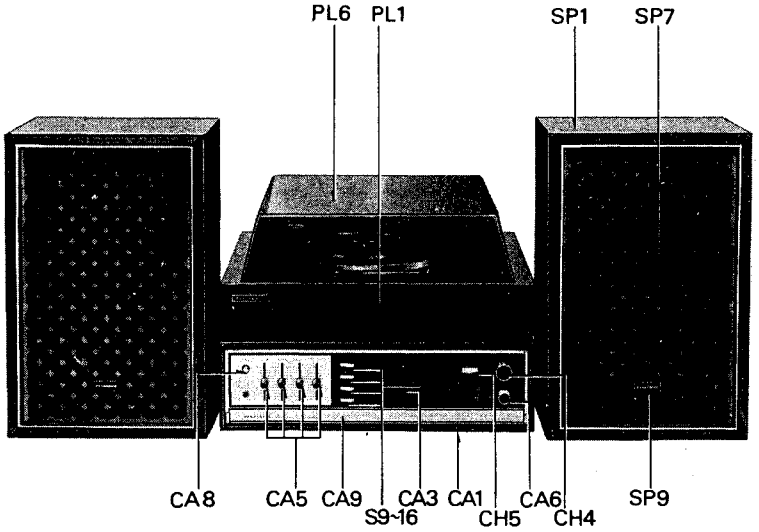


Fig. 1

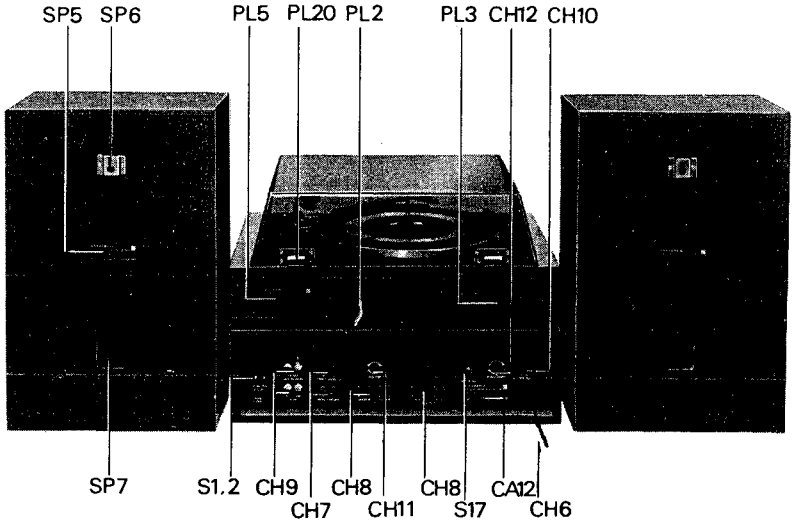
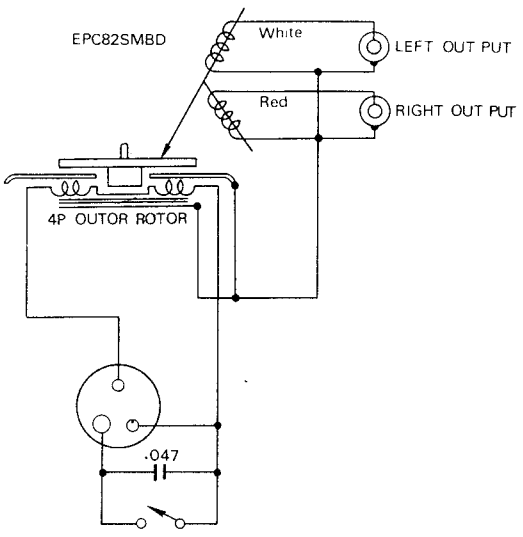


Fig. 2

SCHEMATIC DIAGRAM MODEL SL-700A

(PLAYER UNIT MODEL SAP-113)



DISASSEMBLY INSTRUCTIONS

TO REMOVE RECORD CHANGER

1) Remove player bottom board.
2) Remove two (2) plugs from player unit.
3) Turn three (3) locking clips, as illustrated in fig. 3.
4) Remove record changer from player cabinet.

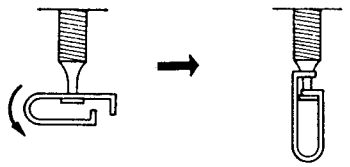


Fig. 3

TO REMOVE CHASSIS

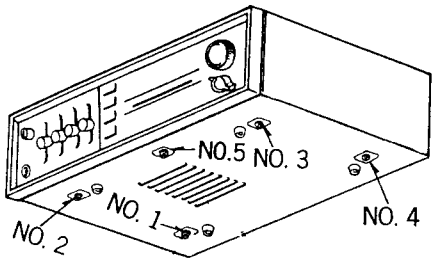


Fig. 4

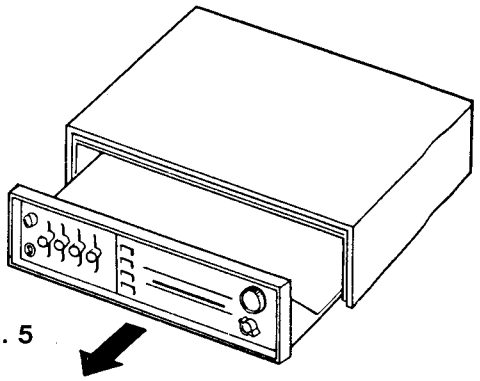


Fig. 5

1) Remove five (5) bottom board screws, Nos. 1-5, as illustrated in fig. 4.
2) Remove chassis from cabinet, as illustrated in fig. 5.

DIAL CORD STRINGING GUIDE

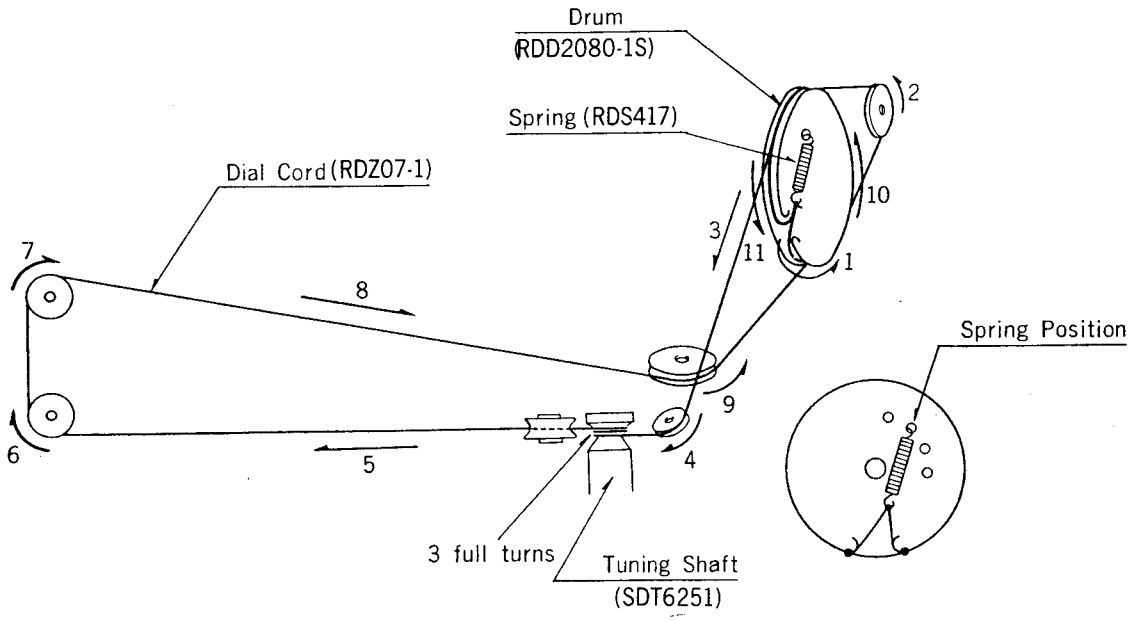


Fig. 6

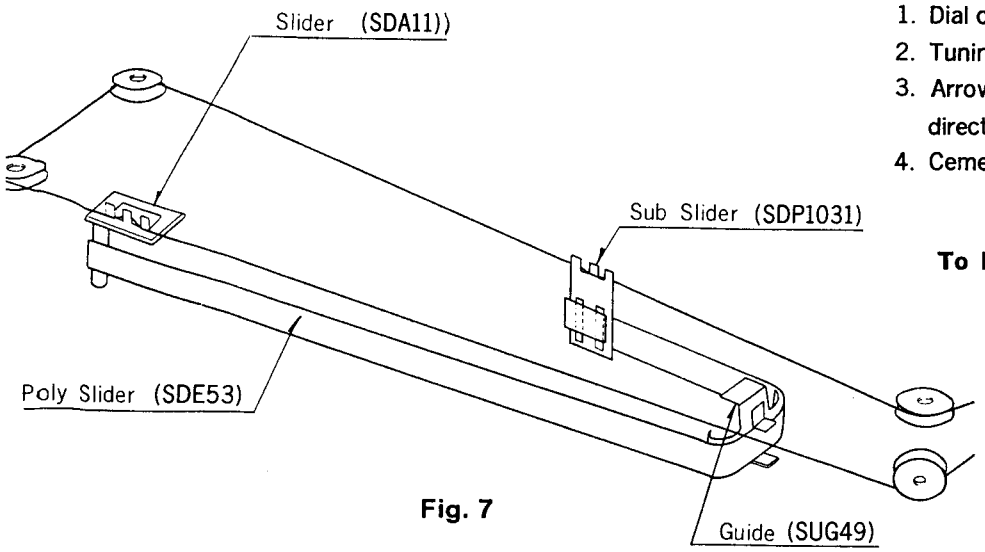


Fig. 7

Notes:

1. Dial cord lengh is 60″. (Refer to fig. 6)
2. Tuning gang is positioned at minimum capacity.
3. Arrow marks (1-11) indicate correct order and direction of stringing dial cord.
4. Cement dial cord ends.

To Mount Slider

1. Set tuning gang to fully closed position
2. Set slider to start point of dial scale
3. Attach slider to dial cord.
4. Attach sub slider to dial cord.

ALIGNMENT POINTS

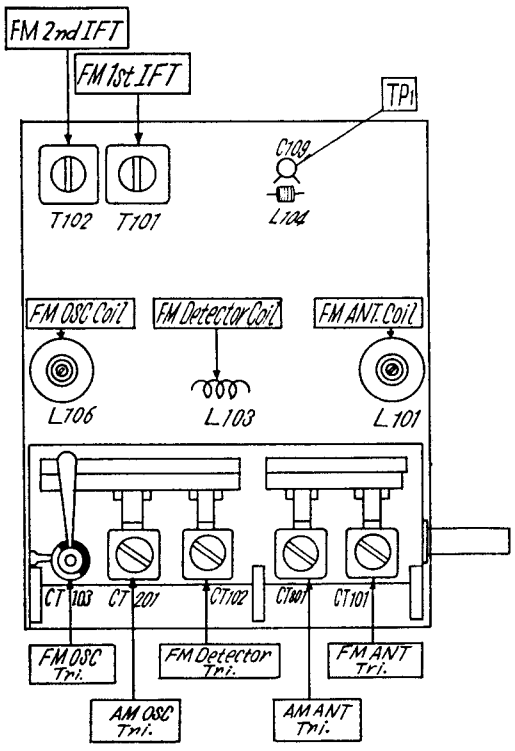


Fig. 8

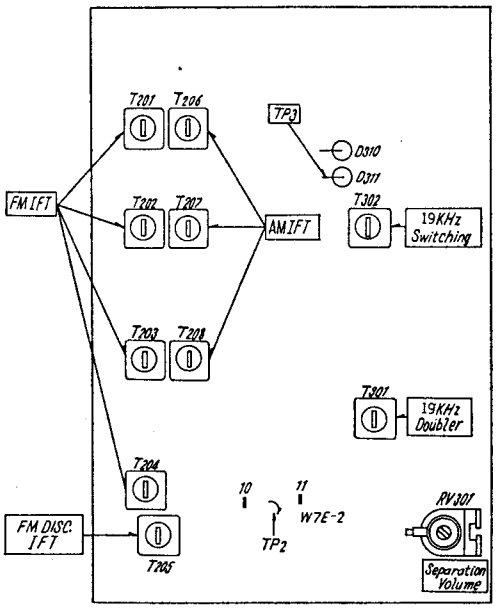


Fig. 9

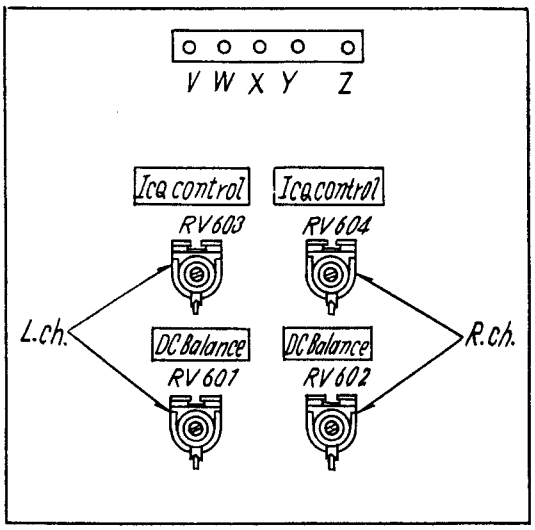


Fig. 10

ALIGNMENT INSTRUCTIONS

FREQUENCY & DISTANCE ON DIAL SCALE

To accurately align the proper frequencies to the dial scale, refer to Table and mark the edge of the dial scale plate accordingly, using the "Start Point" mark on the dial scale as a reference point.

TABLE

Band	Frequency	Distance from "Start Point"	
AM	550 kHz	11.34 mm	15/32"
	1500 kHz	109.62 mm	4 5/16"
FM	90 MHz	20.2 mm	25/32"
	106 MHz	69.1 mm	2 23/32"

1. AM/FM-IF & RF ALIGNMENT

AM-IF & RF ALIGNMENT (Refer to figs. 8, 9)

Output of signal generator should be no higher than necessary to obtain an output reading.
Set volume control to maximum.
Set balance control to center.
Set bass control to center.
Set treble control to center.
Set band selector switch to AM.
Maintain line voltage at rated voltage.

SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz (400 Hz Mod.)	Point of noninterference. (on/about 600 kHz)	Output meter across EXT Speaker Jack (L) (Imp. 16)	T206 (1st IFT) T207 (2nd IFT) T208 (3rd IFT)	Adjust for maximum output
〃	550 kHz (400 Hz Mod.)	550 kHz	〃	L204 (OSC Coil) L801 (ANT Coil)	Adjust for maximum output by sliding coil (L801) along ferrite core.
〃	1500 kHz (400 Hz Mod.)	1500 kHz	〃	CT201 (OSC Trimmer) CT801 (ANT Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).

Notes: 1. Cement antenna bobbin with wax after completing alignment.
2. Make certain that speaker system is connected to the tuner when alignment.

FM-IF AND DETECTOR ALIGNMENT WITH OSCILLOSCOPE (Refer to figs. 8, 9)

EQUIPMENT REQUIRED

Signal generator that provides 10.7 MHz marker.
Sweep generator that provides 10.7 MHz center frequency and 400 kHz sweep width.
Oscilloscope

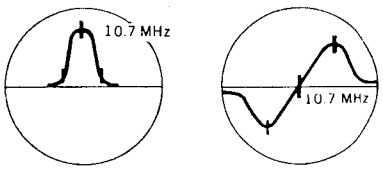


Fig. 11

Set sweep selector of oscilloscope to "External Sweep". Apply 60 Hz sweep signal from sweep generator to horizontal input terminals of oscilloscope.
Set band selector switch to FM.
Set volume control to minimum.
Set bass control to center.
Set treble control to center.
Set balance control to center
Maintain line voltage at rated voltage.

STEP	SWEEP GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1	High side thru. 0.001 μF to point TP2. Common to chassis.	High side thru. dummy antenna to point TP1. Common to chassis.	Point of non-interference (on/about 89 MHz)	Connect vert. amp. of scope to point TP2. Common to chassis.	T101 (FM 1st IFT) T102 (FM 2nd IFT) T201 (FM 3rd IFT) T202 (FM 4th IFT) T204 (FM 6th IFT)	Turn T203 and T205 upwards and adjust T101, T102, T201, T202 and T204 for maximum amplitude and symmetrical curve.
2	〃	〃	〃	〃	T205 (FM DISC. IFT)	Adjust T205 (primary) so that 10.7 MHz marker is at the center.
3	〃	〃	〃	〃	T203 (FM 5th IFT) T204 (FM 6th IFT) T205 (FM DISC. IFT)	〃

FM-RF ALIGNMENT (Refer to fig. 8)

Output of signal generator should be no higher than necessary to obtain an output reading.
Set volume control to maximum.
Set balance control to center.
Set band selector switch to FM.
Set treble control to center.
Set bass control to center.
Maintain line voltage at rated voltage.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1	Connect to EXT. FM antenna terminal through FM dummy antenna. Common to chassis.	90 MHz (400 Hz Mod.)	90 MHz	Output meter across EXT Speaker Jack (L)	L_{106} (FM OSC Coil) L_{101} (FM ANT Coil) L_{103} (FM Detector Coil)	Adjust for maximum output.
2	〃	106 MHz (400 Hz Mod.)	106 MHz	〃	CT_{103} (FM OSC Trimmer) CT_{801} (FM ANT Trimmer) CT_{102} (FM Detector Trimmer)	Adjust for maximum output. Repeat steps (1) and (2).

Note: As three output responses will be present proper tuning is the center frequency.

2. FM-STEREO ALIGNMENT

19 kHz AMP. ALIGNMENT (Refer to fig. 9)

EQUIPMENT REQUIRED
Stereo Modulator ..... Connect Stereo Modulator output to EXT. Mod. terminal of signal generator.
Signal Generator ..... Modulation Rate of 19 kHz pilot signal 10%
Output Level .....30 dB Frequency ..... Approximately 90 MHz
Oscilloscope Dummy Antenna VTVM

CONTROL SETTING & PROCEDURE
Tuner ..... Band selector switch to FM STEREO, treble control to minimum, bass control to minimum balance control to center, volume control to andible level of speaker sound and dial setting to approximately 90 MHz.

EQUIPMENT CONNECTION		ADJUST	REMARKS
SIGNAL GENERATOR	OSCILLOSCOPE		
Connect to EXT. FM antenna terminal through Dummy antenna.	Connect vert Amp. of scope to point TP_4. Common to chassis.	T_{301} (19 kHz Pick-up Coil) T_{302} (38 kHz Coil)	Adjust T_{301} and T_{302} for maximum oscilloscope pattern of 38 kHz.

SEPARATION ALIGNMENT (Refer to fig. 9)

EQUIPMENT REQUIRED
Stereo Modulator ..... Connect Stereo Modulator output to EXT. Mod. terminal of signal generator.
Signal Generator ..... Modulation Rate of 19 kHz pilot signal 10%
Modulation Rate by signal 30%
Output Level 60%
Oscilloscope Dummy Antenna VTVM

CONTROL SETTING & PROCEDURE
Tuner ..... Band selector switch to FM Stereo, treble control to minimum, bass control to minimum, balance control to center, volume control to 500 mW of output level.

STEP	ALIGNMENT CIRCUIT	ADJUSTMENT	REMARKS
1	SEPARATION	RV_{301} (Separation Control)	Adjust RV_{301} for the minimum indication on VTVM from the right side output when the left side of stereo modulator is modulated.

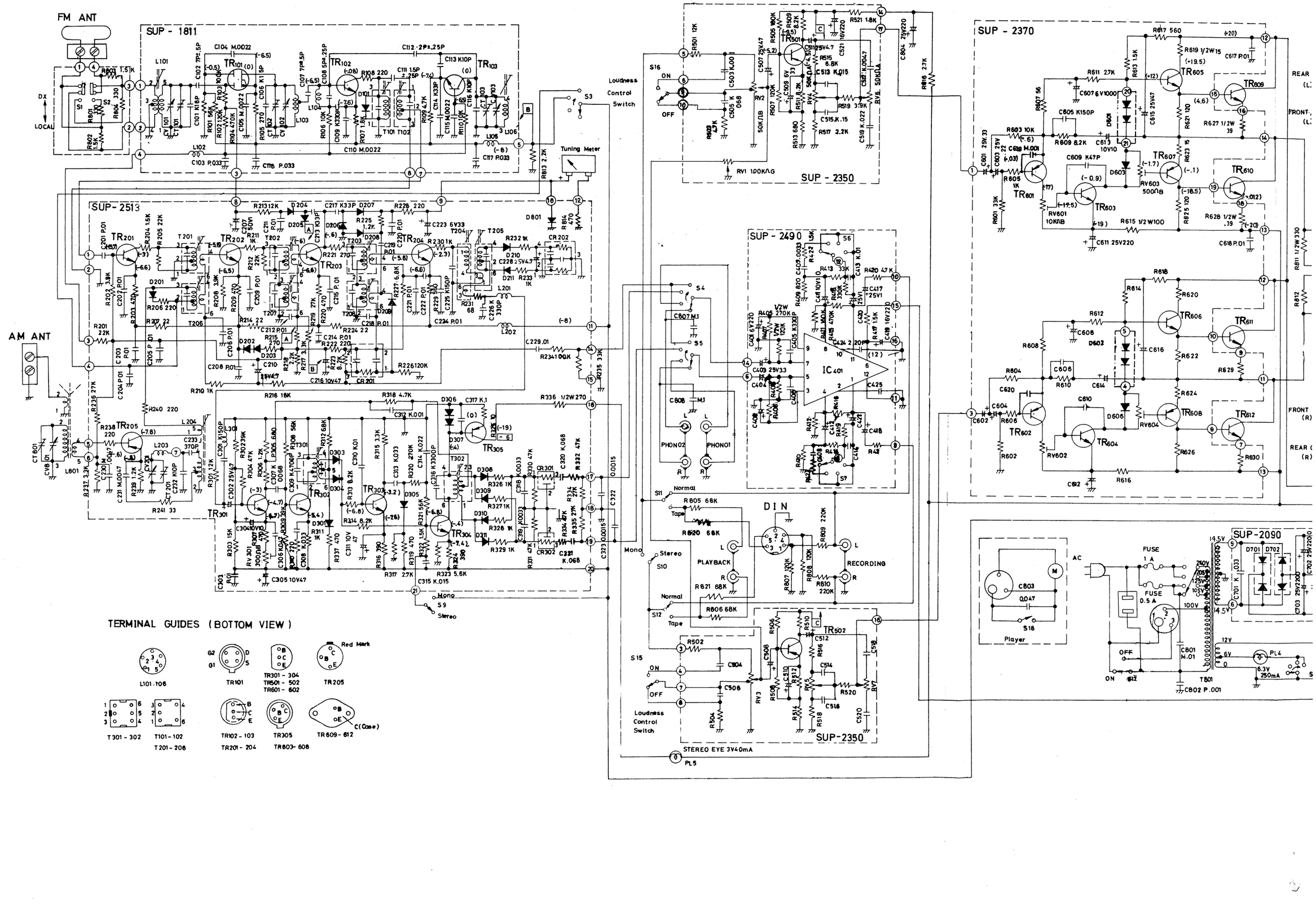
3. POWER AMP. ALIGNMENT (Refer to fig. 10)

EQUIPMENT REQUIRED
Tester ..... DC mV Range VTVM ..... DC mV Range

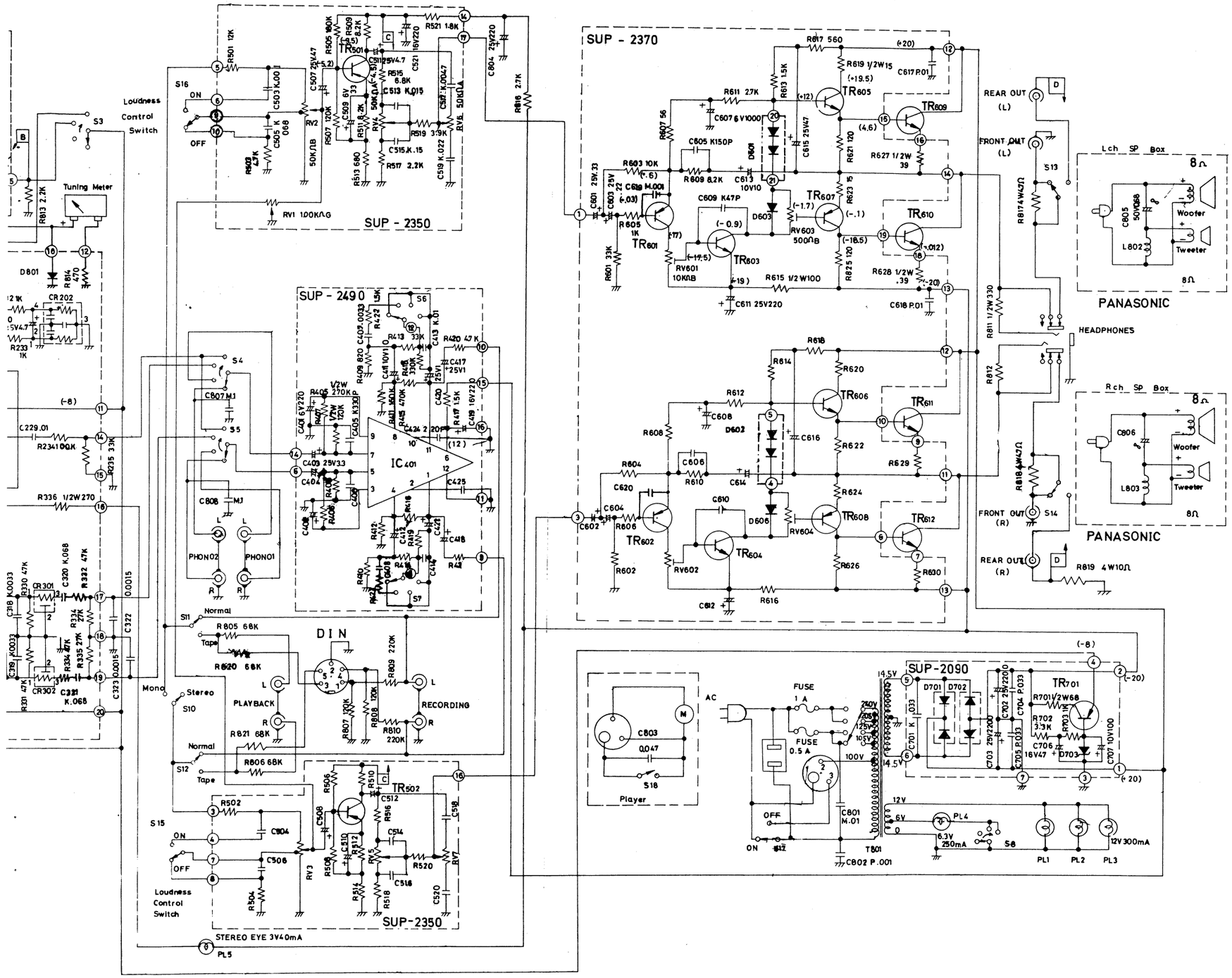
CONTROL SETTING & PROCEDURE
Tuner ..... Band selector switch to PHONO, treble control to minimum, bass control to minimum, balance control to center, volume control to minimum.

STEP	ALIGNMENT CIRCUIT	EQUIPMENT CONNECTION	ADJUSTMENT	REMARKS
1	DC Balance	Connect Tester to Point W and X.	RV_{601} (Lch)	Make adjustments so that the power voltage becomes 0 voltage.
2		Connect Tester to Point Y and X.	RV_{602} (Rch)	
3	ICQ Control	Connect VTVM (for DC mV) to point V and W.	RV_{603} (Lch)	Make adjustments so that the indication on VTVM becomes 12 mV. Repeat steps (1, 2 and 3, 4)
4		Connect VTVM (for DC mV) to point Y and zZ.	RV_{604} (Rch)	

SCHEMATIC DIAGRAM MODEL SS-7000A



SS-7000A



TRANSISTORS		DIODES	
TR_{101}	3SK32	D_{101}	OA79
TR_{102}	2SC784	D_{201}	OA70
TR_{103}	2SC381	$D_{202-203}$	MA26
$TR_{201-202}$	2SC381	$D_{204-207}$	OA79
$TR_{203.204}$	2SC645	$D_{208-209}$	OA70
TR_{205}	2SA102	$D_{210-211}$	2OA79
$TR_{301-304}$	2SC828	D_{301}	MA26
TR_{305}	2SA550	$D_{303-304}$	OA70
$TR_{501-502}$	2SA666	$D_{305-307}$	MA26
$TR_{601.602}$	A2SA666	$D_{308-311}$	2OA70
$TR_{603.606}$	A2SC538	$D_{601.602}$	MA26-2
$TR_{607.608}$	A2SA550	$D_{603.606}$	MA26-1
$TR_{609.612}$	A2SD226	D_{701}	IS1850
TR_{701}	2SB324	D_{702}	1S1850R
		D_{703}	02Z8.2A
I C		D_{801}	OA70
IC_{401}	AN204		

NOTES

1. ○ --Corresponds to the number on the printed wiring board
2. S1-S2 FM Sensitity Select Switch now in DX position.
3. S3-S8--Selector Switch now in PHONO2 position. moves PHONO2 → PHONO1 → FMAUTO → AM in that order.
4. S9-S10--MODE Switch now in STEREO position.
5. S11-S12--TAPE MONITOR Switch now in normal position.
6. S13-S14--STEREO MODE Switch now in 2CH position. 2CH STEREO → 4CH STEREO
7. S15-S16--LOUDNESS CONTROL Switch now in OFF position.
8. DC Voltage measurements are taken with circuit Tester (100KΩ/V) from chassis ground
   ( )---NO Signal Condition.
   □--- FM Stereo Signal Reception
9. S17 Power Source Switch now in ON position.

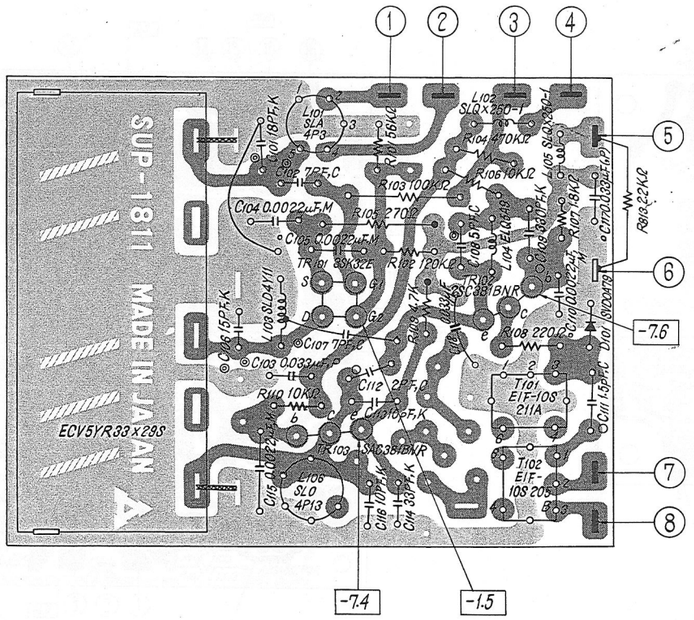
CR Numbers

FM FRONT	C101-118	R101-110
IF	C201-233	R201-241
MPX	C301-321	R301-337
PRE	C401-425	R401-429
AF	C503-521	R501-521
POWER	C601-626	R601-630
POWER SOURCE	C701-707	R701-703
OTHERS	C801-808	R801-821

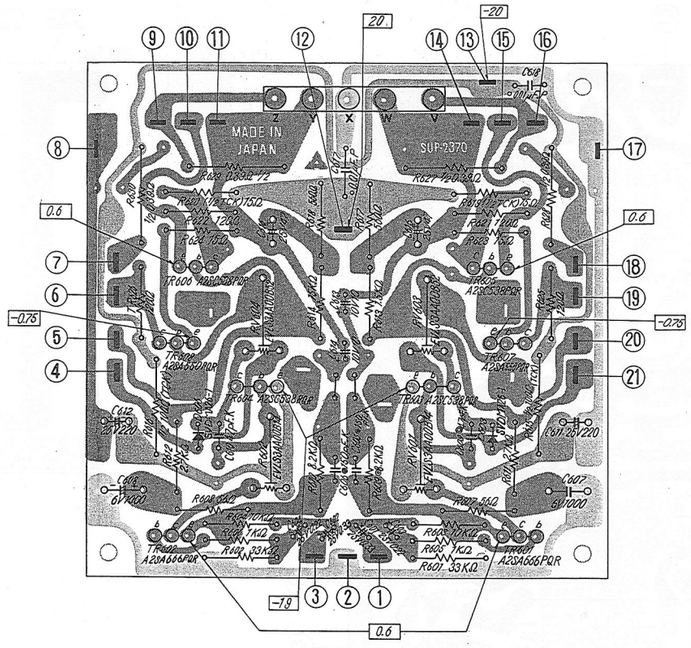
This schematic diagram may be modified with development of technology.

CIRCUIT BOARD MODEL SS-7000A

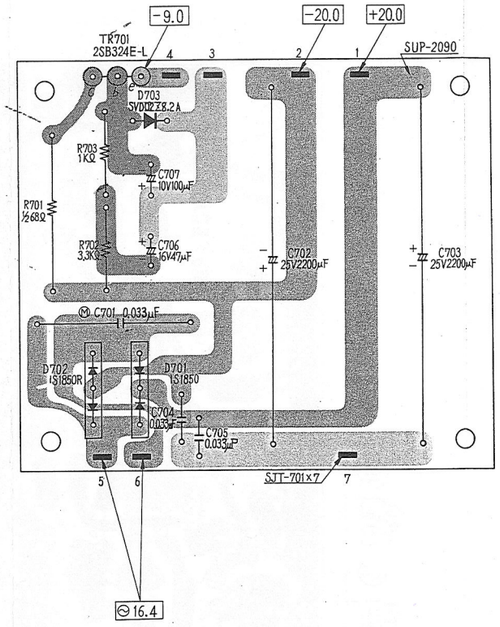
FM RF



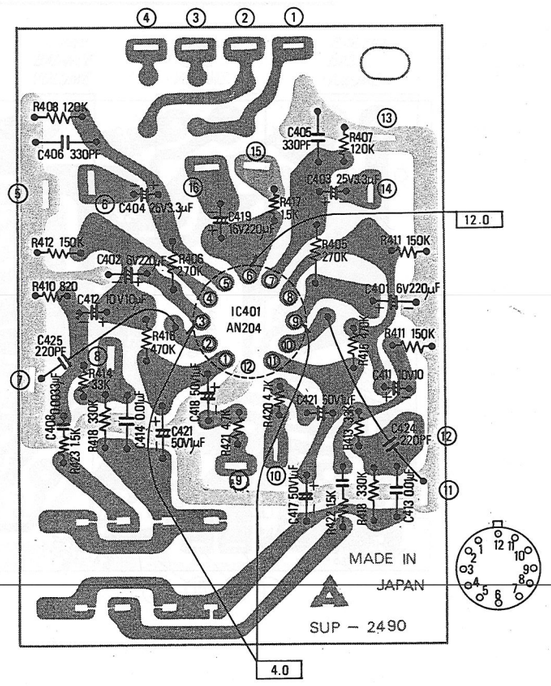
POWER AMP



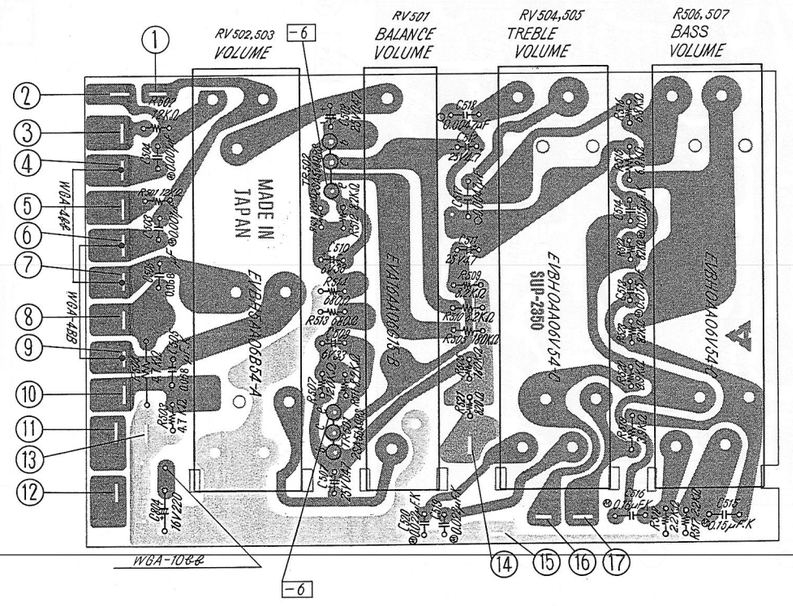
RECTIFIER



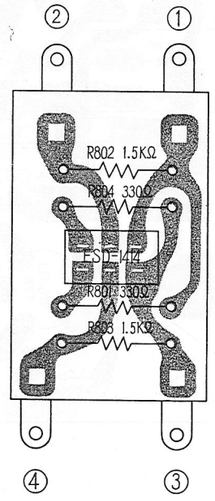
EQUALIZER



TONE CONTROL AMP

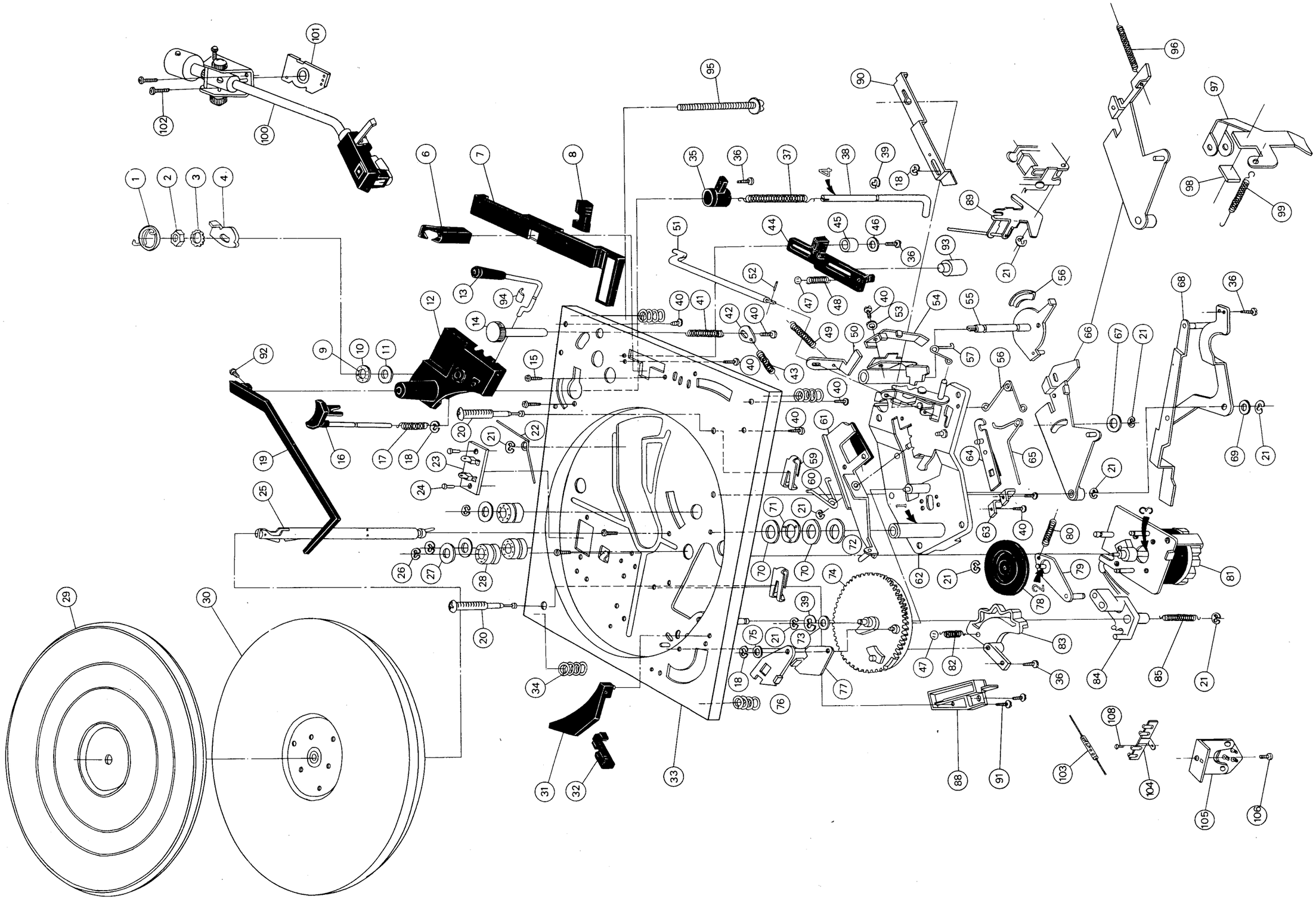


FM ATT



AM IF, RF & FM IF

EXPLODED VIEW MODEL SL-700A

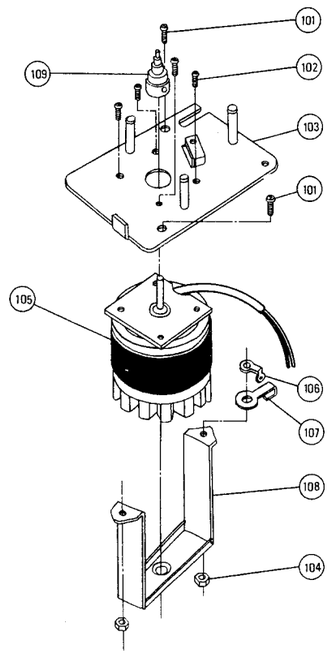


SPARE PARTS LIST MODEL SL-700A
(PLAYER UNIT MODEL SAP-113)

REF, NO.	PART NO.	DESCRIPTION	REF, NO.	PART NO.	DESCRIPTION
1	G4518	Spring	37	G4003	Spring
2	G5053S	Nut	38	G8522	Supporting Rod
3	G4036	Washer	39	REE5000	"E" Ring
4	G4840	Binder	40	SBSB3006Z	Tapping Screw
6	G8849-D	Rest Ass'y	41	G4003	Spring
7	G3525-B	Control Panel	42	G40005	Plate (Anti Skating)
8	G8508	Knob	43	G40506	Spring (Inside Force)
9		Steel Ball 1/16"	44	G4372	Knob (Select)
10	G6246	Bearing Holder	45	G4500-2	Spacer
11	G4517	Thrust Washer	46	Q03091-127	Washer
12	G2172	Pick Up Base	47		Steel Ball 3/16"
13	G8523-B	Cueing Lever	48	G8511-2	Spring
14	G40004	Knob	49	G8559	Spring
15	LPSP3006ZS	Tapping Screw	50	G8558	Push off Lever
16	G3669	Elevator Ass'y	51	G8557	Pilot Rod
17	G8521	Spring (Elevator)	52	SPE1606	Spring Pin
18	REE3000	"E" Ring	53	WNS3000N	Washer
19	G2171	Support	54	G40439	Friction Leyer
20	G8353-IS	Mounting Screw	55	G4515-GS	Arm Lever Ass'y
21	REE3000	"E" Ring	56	G6204	Friction Rubber
22	G8512	Reject Spring	57	G8546	Spring (Select Lever)
23	G6119-B	Jack Ass'y	58	G8513	Spring (ON-OFF)
24	RTA3004	Rivet	59	G6774	Locking Clip
25	G3474-A	Spindle Ass'y	60	G8563	Spring (V. Lever)
26	REE4000	"E" Ring	61	G8548-A	V. Lever Ass'y
27	G8570	Washer	62	G2145-AS	Base Sub Ass'y
28	52992-2	Rubber Bushing	63	G8569	Bracket
29	G2228-A	Turn Table Covering	64	G8566	Ejector Link Plate
30	G2227-A	Turn Table Ass'y	65	G8568	Spring
31	G3523	Speed Change Cover	66	G8477-A	H. Plate Ass'y
32	G8846	Knob (Speed Change)	67	Q03091-109	Washer
33	G1150-AS	Motor Board Ass'y	68	G3468-A	Start Lever Ass'y
34	G8501-2	Flowting Spring	69	Q03091-137	Washer
35	G8845	Bracket	70	G4590	Thrust Washer
36	SBSB3008Z	Tapping Screw	71	G5670-4	Bearing Ass'y

REF, NO.	PART NO.	DESCRIPTION	REF, NO.	PART NO.	DESCRIPTION
72	G8387	Bearing Cushion	93	G8529	Stud
73	G8552	Washer	94	G40358	Spacer
74	G2223-A	Main Gear Ass'y	95	G6566-3	Mounting Screw
75	WSB3000N	Washer	96	G40613	Spring (H. Plate)
76	G8553	Engagement Pole	97	G40507	Friction Lever
77	G8554	Trip Feed Plate	98	G40518	Friction Rubber
78	M4591-D	Idler Ass'y	99	G40508	Spring (Friction Lever)
79	M6016-B	Idler Arm Ass'y	100	PM-506S(a)	Pick Up Ass'y
80	G40512	Idler Spring	101	SPSP3004NS	Screw
81	EM-42041-D	Phono Motor Ass'y	102	SPSP3004NS	Screw
82	G8511	Spring	103	G48517-473-M	Plate Ass'y itor
83	G3522	Cam (Speed Change)	104	G5053S-43	Nut Strip Ass'y
84	G8840-2	Idler Arm	105	G8058-A	Motor Ass'y 'y
85	G8510-2	Spring (Speed Change)	106	Q03207-473-M	OF T Capacitor
88	G3200	Swich Arm	108	Q03001-43 IS	Lug Strip Ass'y
89	G8548-A	Shift Lever		EPC82SMBD	Cartridge, Magnetic
90	G8555-A	Trip Slide Ass'y		EPS31STSD	Stylus, Diamond
91	SBSB3010Z	Tapping Screw	109	M6504-B	Capstan for 60 Hz
92	SBSB3006NS	Tapping Screw	109	M6504-A	Capstan for 50 Hz

EXPLODED VIEWS



MAINTENANCE

STYLUS REPLACEMENT (Fig. 12)

This unit includes a diamond stylus.
After 1,000 hours or more of use, a diamond stylus will cause disagreeable noise, and not only affects the sound quality, but also may damage the record. The stylus should, therefore, be replaced with a new one.

Replacement Stylus:

PANASONIC EPS-31STSD (DIAMOND)
Audio-technica VM8L-7D (DIAMOND)

1) Holding the stylus protection cover with the first finger and the thumb, press downward for easy removal.

LUBRICATION (Fig. 13)

1) Pull off the Automatic record spindle, and remove the C-washer of turntable center then remove the turntable and oil the following parts.
2) Apply high-quality grease to the turntable shaft after every 200 hours' use.

* Do not allow grease and oil to touch motor pulley or other moving parts.
* If soiled by oil or grease, wipe off carefully with a soft, dry cloth.

ADJUSTMENT OF PICKUP SET-DOWN POSITION (Fig. 14)

* The set-down position of the pickup can be adjusted by turning the stylus set-down screw to either the left or the right. When turned to the right❶, the pickup will be set down further to the inside; when turned to the left, it will be set down further to the outside.

INSIDE FORCE CANCELER (Fig. 15)

This is used to adjust the inside force effect of the pickup while traveling on the record.
Always set this canceler to the "4" position.

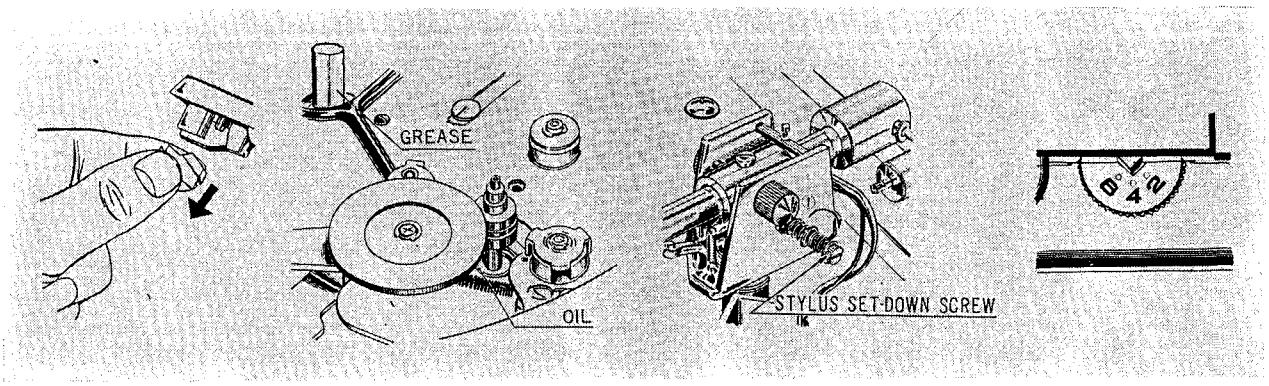


Fig. 12 Fig. 13 Fig 14 Fig. 15

INSTALLATION

❶ AUTOMATIC TURNTABLE

1) Remove the motor and turntable transit screws.
2) The player will raise if the two transit screws are turned clockwise. Be sure, therefore, to tighten these screws thoroughly.
3) Mount the turntable rubber (packed separately) onto the turntable.
4) Remove the packaging materials used for protection during transportation.

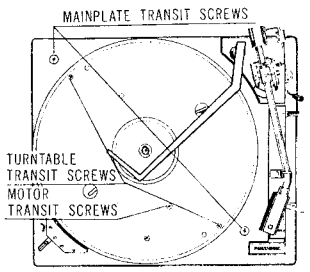


Fig. 16

❷ HOW TO INSTALL THE SPINDLE FOR AUTOMATIC PLAY

1) Insert the spindle into the hole at the center of the turntable.
If the projection part of the spindle is completely inserted into the recessed part of the turntable shaft hole, as shown in the figure, a click can be heard to indicate the insertion is correct.

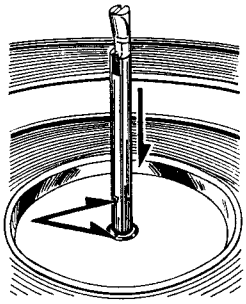


Fig. 17

2) If the click is not heard, it is not completely inserted and should be inserted again.

❸ POWER VOLTAGE & FREQUENCY

Power source voltage (rear cabinet): Fig. 18
Before use, confirm that the power source voltage agrees with that to which this unit is set. If they do not agree, use a (−) screwdriver to change the setting of the voltage selector.

Power source frequency: (Fig. 19)
AC power frequency varies not only from country to country, but often from region to region. Therefore be careful to check the frequency in your new area. If it is different, the motor pulley must be changed to avoid incorrect turntable revolution speed. Follow these steps when changing the motor pulley.
1) Pull off the Automatic record spindle. Remove the C-washer of the turntable center and then remove the turntable.
2) Loosen the fixing screw and remove the motor pulley.
3) Attach the other motor pulley.
4) Set the speed control lever at 33 and turn the operating lever to ON. Check the length of part A.

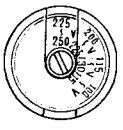


Fig. 18

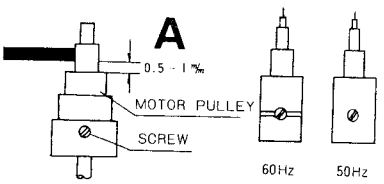


Fig. 19

INTRODUCTION OF MONOLITHICK IC

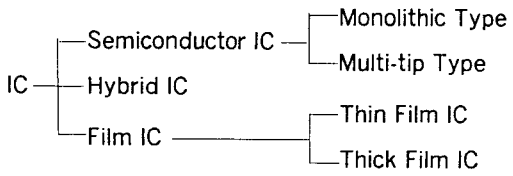
The Equalizer Circuit of SS-7000A uses IC (shown in the Circuit Diagram IC_{401} AN-204). Please read through the following explanation and make the best use of it.

General Theory of IC

■ IC (Integrated Circuit)

Since Texas Instruments, USA, developed know how to make transistors, diodes, resistors, capacitors, etc. on a minute single base plate in 1958, this technique is widely applied to electric appliances.

■ Classifications by manufacturing method of IC



■ Advantages of IC

1) Compactness and light weight.
2) Small electric consumption.
3) Low cost if mass-produced.
4) High reliability
5) Fewer manufacturing processes needed.
6) Simple procedure to make the intricate circuit.

MONOLITHIC TYPE SEMICONDUCTOR IC

The Semiconductor IC consists of a number of transistors, diodes, resistors and capacitors combined together on a silicon base plate of about 1 mm square. It is manufactured by use of photographic technology.

■ IC AN-204 (For Model SS-7000A)

AN-204 is a monolithic type semiconductor IC for low-frequency amplification, developed by Matsushita Electronics Corporation. 10 transistors, 6 diodes, 10 resistors and 2 capacitors are built in one chip, and 12 feet are attached to the IC.

Makes no loud noise and shows high loop gain. When used for an MM cartridge equalizer circuit, it helps attain a sufficient amount of feedback gain. It, therefore, constitutes a stable cartridge equalizing circuit almost free distortion.

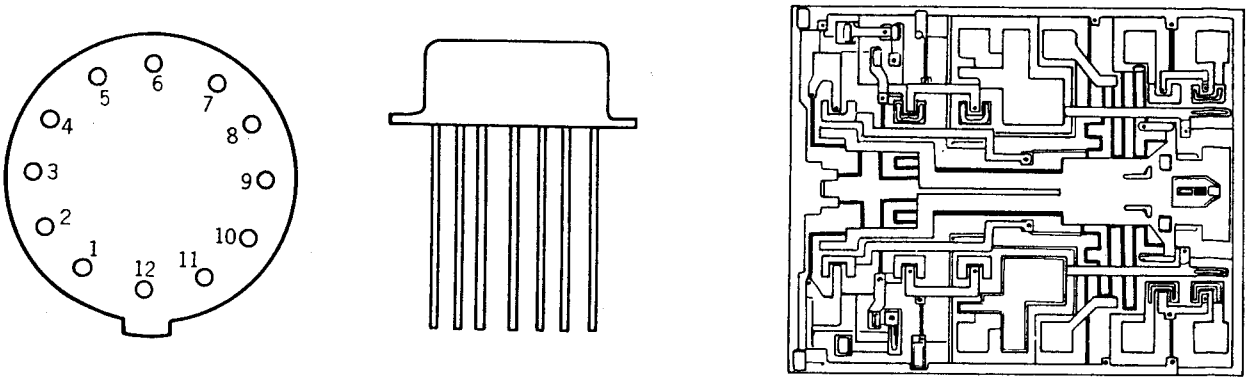


Fig. 20

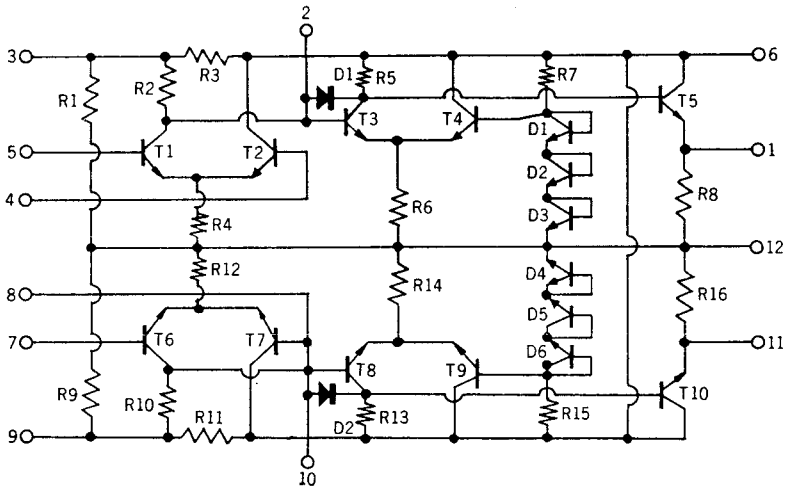
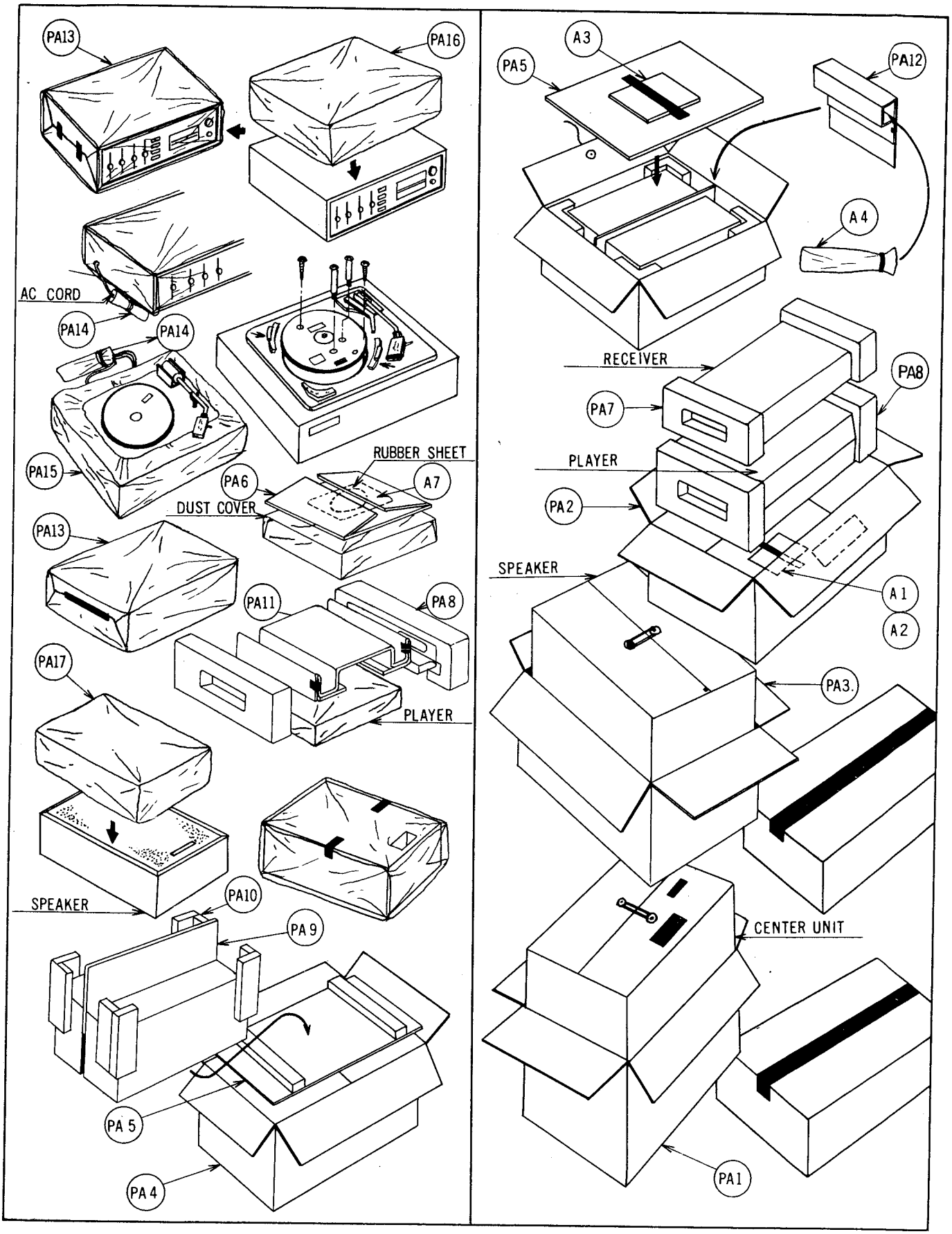


Fig. 21 Equalizer (Equivalent) Circuit

MEMO

COMPONENT PACKING PROCEDURE



■ REPLACEMENT PARTS LIST

NOTES:

1. Part numbers indicated on most mechanical parts.
   Please use this Part number for parts orders.
2. Ⓝ indicates the New Parts.
3. **A—C** rank: **A** rank parts will cover 80% of repair needs.
   A+B rank parts will cover 95% of repair needs
   C rank parts are less necessary.

SS-7000A

Ref. No.	Part No.	Description	Per Set (Pcs.)	Remarks
IC, TRANSISTORS and DIODES				
TR101	3SK32E	FM RF AMP	1	A
TR102	2SC381BNR	FM Mixer	1	A
TR103	2SC381BNR	FM OSC	1	A
TR201	2SC381BNR	FM 1st IF AMP	1	A
TR202	2SC381BNR	FM 2nd IFAmp., AM 1st IF Amp.	1	A
TR203	2SC645AC	FM 3rd IF Amp., AM 2nd IF Amp.	1	A
TR204	2SC645AC	FM Limiter	1	A
TR205	2SA102CA	AM Converter	1	A
TR301	2SC828RS	Distributor	1	A
TR302	2SC828RS	19kHz Amp.	1	A
TR303	2SC828RS	38kHz Amp.	1	A
TR304	2SC828RS	38kHz Switching	1	A
TR305	2SA550QRS	Lighting	1	A
IC401	AN204	Equalizer Amp.	1	A
TR501,502	2SA666QRS	Pre Amp.	2	A
TR601,602	A2SA666PQR	1st Driver Amp.	2	A
TR603,604	A2SC538PQR	2nd Driver Amp.	2	A
TR605,606	A2SC538PQR	3rd Driver Amp.	2	A
TR607,608	A2SA550PQR	3rd Driver Amp.	2	A
TR701	2SB324E-L	Rectifier	1	A
TR609~612	A2SD226PQ	Power Amp.	4	A
D101	SVD0A79	FM AGC	1	A
D201	SVD0A70	AM AGC	1	A
D202,203	SVDMA26	Bias Diode	2	A
D204,205	SVD0A79	Voltage Doubler Rectifier	2	A
D206,207	SVD0A79	Meter Diode	2	A
D208	SVD0A70	Meter Diode	1	A
D209	SVD0A70	AM Detector	1	A
D210,211	SVD20A79	FM Detector	1pair	A
D301	SVDMA26	Temperature Compensator	1	A
D303	SVD0A70	38kHz Doubler	1	A
D304	SVD0A70	Auto Switching	1	A
D305	SVDMA26	Auto Switching	1	A
D306,307	SVDMA26	Temperature Compensator	2	A
D308~311	SVD20A70	38kHz Switching	4	A
D601,602,604,605	SVDMA26	Temperature Compensator	2pair	A
D603,606	SVDMA26-1	Temperature Compensator	2	A
D701	SVD1S1850	Rectifier	1	A
D702	SVD1S1850R	Rectifier	1	A
D703	SVD02Z8.2A	Stabilizer	1	A
D801	SVD0A70	Meter Diode	1	A
TRANSFORMERS and COILS				
T101	EIF10S211A	FM 1st IFT	1	A
T102	EIF10S205B	FM 2nd IFT	1	A
T201	SLI4C103	FM 3rd IFT	1	A
T202	SLI4C103	FM 4th IFT	1	A
T203	SLI4C103	FM 5th IFT	1	A
T204	SLI4C501	FM 6th IFT	1	A
T205	EIF10S211E	FM Disc. IFT	1	A
T206	SLI2C115	AM 1st IFT	1	A
T207	EIA10S216BM	AM 2nd IFT	1	A
T208	SLI2C407	AM 3rd IFT	1	A
T301	SLM1C3T-1	38kHz Doubler	1	A
T302	SLM1C7T-1	38kHz Switching	1	A
T801	SLT5N27	Power Transformer	1	A
L101	SLA4P3	FM ANT Coil	1	A
L102,105,201,202	SLQX250-1	Choke Coil	4	A
L103	SLD4Y11	FM Detector Coil	1	A
L104	ELQ5A9	FM IF Trap Coil	1	A
L106	SL04P13	FM OSC Coil	1	A
L203	ELQ6A11	Choke Coil	1	A
L204	SL02P1	MW OSC Coil	1	A
L301	ELQ393D599G	SCA Filter Coil	1	A
L801	SLF2D3	MW ANT Coil	1	A

Ref. No.	Part No.	Description	Per Set (Pcs.)	Remarks
RESISTORS				
R101	ERD14VJ563	56 ohm, 1/4W, ±5%, Carbon	1	C
R102,226,507	ERD14VJ124	120Kohm, 1/4W, ±5%, Carbon	4	C
508				
R103	ERD14TJ104	100Kohm, 1/4W, ±5%, Carbon	1	C
R104,415,416	ERD14VJ474	470Kohm, 1/4W, ±5%, Carbon	3	C
R105	ERD14TJ271	270 ohm, 1/4W, ±5%, Carbon	1	C
R106,110	ERD14VJ103	10Kohm, 1/4W, ±5%, Carbon	2	C
R107,521	ERD14VJ182	1.8Kohm, 1/4W, ±5%, Carbon	2	C
R108,206,222,	ERD14VJ221	220ohm, 1/4W, ±5%, Carbon	6	C
228,238,310				
R109,318,503,	ERD14VJ472	4.7Kohm, 1/4W, ±5%, Carbon	4	C
504				
R201,205,212,	ERD14VJ223	22Kohm, 1/4W, ±5%, Carbon	5	C
420,421				
R202,519,520	ERD14TJ392	3.9Kohm, 1/4W, ±5%, Carbon	3	C
R203	ERD14TJ471	470ohm, 1/4W, ±5%, Carbon	1	C
R204,322,417,	ERD14VJ152	1.5Kohm, 1/4W, ±5%, Carbon	5	C
422,423				
R207,214,224	ERD14VJ220	22ohm, 1/4W, ±5%, Carbon	3	C
R208	ERD14VJ392	3.9Kohm, 1/4W, ±5%, Carbon	1	C
R209,220,307,	ERD14VJ471	470ohm, 1/4W, ±5%, Carbon	6	C
319,337,814				
R210,211,230,	ERD14VJ102	1Kohm, 1/4W, ±5%, Carbon	10	C
232,233,311,				
326~329				C
R213,301,501,	ERD14VJ123	12Kohm, 1/4W, ±5%, Carbon	4	
502				
R215,221	ERD14VJ271	270ohm, 1/4W, ±5%, Carbon	2	C
R216	ERD14VJ183	18Kohm, 1/4W, ±5%, Carbon	1	C
R217,237,315	ERD14VJ332	3.3Kohm, 1/4W, ±5%, Carbon	3	C
R218,517,518	ERD14VJ222	2.2 Kohm, 1/4W, ±5%, Carbon	3	C
R219,236,334,	ERD14VJ273	27Kohm, 1/4W, ±5%, Carbon	4	C
335				
R223,609,610	ERD14TJ822	8.2Kohm, 1/4W, ±5%, Carbon	3	C
R225,239,306	ERD14VJ122	1.2Kohm, 1/4W, ±5%, Carbon	3	C
R227,312,515,	ERD14VJ682	6.8Kohm, 1/4W, ±5%, Carbon	4	C
516				
R229	ERD14VJ561	560ohm, 1/4W, ±5%, Carbon	1	C
R231	ERD14VJ680	68ohm, 1/4W, ±5%, Carbon	1	C
R234	ERD14VJ104	100Kohm, 1/4W, ±5%, Carbon	1	C
R240	ERD14TJ221	220ohm, 1/4W, ±5%, Carbon	1	C
R241	ERD14VJ330	33ohm, 1/4W, ±5%, Carbon	1	C
R302,309	ERD14VJ393	39Kohm, 1/4W, ±5%, Carbon	2	C
R303	ERD14VJ153	15Kohm, 1/4W, ±5%, Carbon	1	C
R304,330~333	ERD14VJ473	47Kohm, 1/4W, ±5%, Carbon	4	C
R305,513,514	ERD14VJ681	680ohm, 1/4W, ±5%, Carbon	3	C
R308,321	ERD14VJ563	56Kohm, 1/4W, ±5%, Carbon	2	C
R313,314,	ERD14VJ822	8.2Kohm, 1/4W, ±5%, Carbon	6	C
509~512				
R316,324	ERD14VJ391	390ohm, 1/4W, ±5%, Carbon	2	C
R317	ERD14VJ272	2.7Kohm, 1/4W, ±5%, Carbon	1	C
R320	ERD14VJ274	270Kohm, 1/4W, ±5%, Carbon	1	C
R323	ERD14VJ562	5.6Kohm, 1/4W, ±5%, Carbon	1	C
R325	ERD14VJ100	10ohm, 1/4W, ±5%, Carbon	1	C
R336	ERD12TK271	270ohm, 1/2W, ±10%, Carbon	1	C
R405,406	ERD12TK274	270Kohm, 1/2W, ±10%, Carbon	2	C
R407,408	ERD12TK124	120Kohm, 1/2W, ±10%, Carbon	2	C
R409,410	ERD14VJ821	820ohm, 1/4W, ±5%, Carbon	2	C
R411,412	ERD14VJ154	150Kohm, 1/4W, ±5%, Carbon	2	C
R413,414	ERD14VJ333	33Kohm, 1/4W, ±5%, Carbon	2	C
R418,419	ERD14VJ334	330Kohm, 1/4W, ±5%, Carbon	2	C
R505,506	ERD14VJ184	180Kohm, 1/4W, ±5%, Carbon	2	C
R601,602	ERD14TJ333	33Kohm, 1/4W, ±5%, Carbon	2	C
R603,604	ERD14TJ103	10Kohm, 1/4W, ±5%, Carbon	2	C
R605,606,703	ERD14TJ102	1Kohm, 1/4W, ±5%, Carbon	3	C
R607,608,816	ERD14TJ560	56ohm, 1/4W, ±5%, Carbon	3	C
R611,612	ERD14TJ272	2.7Kohm, 1/4W, ±5%, Carbon	2	C
R613,614,802,	ERD14TJ152	1.5Kohm, 1/4W, ±5%, Carbon	4	C
803				

SS-7000A

Ref. No.	Part No.	Description	Per Set (Pcs.)	Remarks
R615,616	ERD12TCK101	100ohm, 1/2W, ±10%, Carbon	2	C
R617,618	ERD14TJ561	560ohm, 1/4W, ± 5%, Carbon	2	C
R619,620	ERD12TCK150	150ohm, 1/2W, ±10%, Carbon	2	C
R621,622,625, 626	ERD14TJ121	120ohm, 1/4W, ± 5%, Carbon	4	C
R623,624	ERD14TJ150	15ohm, 1/4W, ± 5%, Carbon	2	C
R627~630	ERM12PKR39	0.39ohm, 1/2W, Wire	4	C
R701	ERD12FJ680	68ohm, 1/2W, ± 5%, Carbon	1	C
R702	ERD14TJ332	3.3Kohm, 1/4W, ± 5%, Carbon	1	C
R801,804	ERD14TJ331	330ohm, 1/4W, ± 5%, Carbon	2	C
R805,806,820, 821	ERD14TJ683	68Kohm, 1/4W, ± 5%, Carbon	4	C
R807,808	ERD14TJ124	120Kohm, 1/4W, ± 5%, Carbon	2	C
R809,810	ERD14TJ224	220Kohm, 1/4W, ± 5%, Carbon	2	C
R811,812	ERC12GK331	330ohm, 1/2W, ±10%, Solid	2	C
R813	ERD14TJ222	2.2Kohm, 1/4W, ± 5%, Carbon	1	C
R817,818	ERM4P4R7	4.7ohm, 4W, Wire	2	B
R819	ERM4P100	10ohm, 4W, Wire	1	C

CAPACITORS

C101	ECCD1H180K	18pfd, WV-50V, ±10%, Carbon	1	C
C102,107	ECCD1H070D	7pfd, WV-50V, ±1pfd, Ceramic	2	C
C103,117,118, 704,705	ECKE1H333PF	0.033mfd, WV-50V, $^{+100}_{-0}$ %, Ceramic	4	C
C104,105,110, 115	ECKE1H222MD	0.0022mfd, WV-50V, ±20%, Ceramic	4	C
C108	ECCD1H050C	5pfd, WV-50V, ±0.25pfd, Ceramic	1	C
C109	ECKD2H331KB	330pfd, WV-500V, ±10%, Ceramic	1	C
C111	ECCD1H1R5C	1.5pfd, WV-50V, ±0.25pfd, Ceramic	1	C
C112	ECCD1H020C	2pfd, WV-50V, ±0.25pfd, Ceramic	1	C
C113	ECMS05100K	10pfd, WV-50V, ±10%, Mica	1	C
C114	ECMS0330K	33pfd, ±10%, Mica	1	C
C116	ECCD1H100KT	10pfd, WV-50V, ±10%, Ceramic	1	C
C201~206 208~212 214,215,224, 208,209,211, 303,617,618	ECKE1H103PF	0.01mfd, WV-50V, $^{+100}_{-0}$ %, Ceramic	20	C
C207,417,418, 420,421	ECEA50V1L	1mfd, WV-50V, Electrolytic	5	B
C210,228,302	ECEA25V4R7L	4.7mfd, WV-25V, Electrolytic	3	B
C213,217	ECCD1H330K	33pfd, WV-50V, ±10%, Ceramic	2	C
C216,305,311	ECEA10V47L	47mfd, WV-10V, Electrolytic	3	B
C223,509,510	ECEA6V33L	33mfd, WV-6V, Electrolytic	3	B
C225,301,605, 606	ECCD1H151K	150pfd, WV-50V, ±10%, Ceramic	4	C
C226	ECKD2H331KB	330pfd, WV-500V, ±10%, Ceramic	1	C
C229,310,413, 414	ECQG05103KZ	0.01mfd, WV-50V, ±10%, Polyester	4	C
C230,231	ECKE1H472MD	0.0047mfd, WV-50V, ±20%, Electrolytic	2	B
C232	ECCD1H100K	10pfd, WV-50V, ±10%, Ceramic	1	C
C233	ECQS1371JX	370pfd, WV-100V, ± 5%, Polysterene	1	C
C304,411,412, 613,614	ECEA10V10L	10mfd, WV-10V, Electrolytic	5	B
C306,519,520	ECQG05223KZ	0.022mfd, WV-50V, ±10%, Polyester	3	C
C307	ECQG05682KZ	0.0068mfd, WV-50V, ±10%, Polyester	1	C
C308,313,701	ECQG05333KZ	0.033mfd, WV-50V, ±10%, Polyester	3	C
C309	ECQS1472KX	4700pfd, WV-100V, ±10%, Polystyrene	1	C
C312	ECQG05102KZ	0.001mfd, WV-50V, ±10%, Polyester	1	C
C314	ECQG05473KZ	0.047mfd, WV-50V, ±10%, Polyester	1	C
C315,513,514	ECQG05153KZ	0.015mfd, WV-50V, ±10%, Polyester	3	C
C316	ECQS1332KX	3300pfd, WV-100V, ±10%, Polystyrene	1	C
C317,807,808	ECQG05104KZ	0.1mfd, WV-50V, ±10%, Polyester	3	C
C318,319,407, 408	ECQG05332KZ	0.0033mfd, WV-50V, ±10%, Polyester	4	C
C320,321,505, 506	ECQG05683KZ	0.068mfd, WV-50V, ±10%, Polyester	4	C
C401,402	ECEA6V220L	220mfd, WV-6V, Electrolytic	2	B
C403,404	ECEA25V3R3L	3.3mfd, WV-25V, Electrolytic	2	B
C405,406	ECCD1H331K	330pfd, WV-50V, ±10%, Ceramic	2	C
C419,521	ECEA16V220L	220mfd, WV-16V, Electrolytic	2	B
C503,504	ECQG05102KZ	0.001mfd, WV-50V, ±10%, Polyester	2	C
C507,508	ECAG25ER47L	0.47mfd, WV-25V, Electrolytic	2	B
C515,516	ECQG05154KZ	0.15mfd, WV-50V, ±10%, Polyester	2	C
C517,518	ECQG05472KZ	0.0047mfd, WV-50V, ±10%, Polyester	2	C
C601,602	ECAG25ER33L	0.33mfd, WV-25V, Electrolytic	2	B
C603,604	ECAG25ER22L	0.22mfd, WV-25V, Electrolytic	2	B
C607,608	ECEA6V1000L	1000mfd, WV-6V, Electrolytic	2	B
C609,610	ECCD1H470K	47pfd, WV-50V, ±10%, Ceramic	2	C
C611,612	ECEA25V220L	220mfd, WV-25V, Electrolytic	2	B
C615,616	ECEA25V47L	47mfd, WV-25V, Electrolytic	2	B
C625,626	ECKE1H102MD	0.001mfd, WV-50V, ±20%, Ceramic	2	C
C706	ECEA16V47L	47mfd, WV-16V, Electrolytic	1	B
C707	ECEA10V100L	100mfd, WV-10V, Electrolytic	1	B
C702,703	ECEB25V2200L	2200mfd, WV-25V, Electrolytic	2	B
C322,323	ECQG05152KZ	0.0015mfd, WV-50V, ±10%, Polyester	2	C
C801	ECNU8A103M	0.01mfd, WV-800V, ±20%, Oil	1	C
C802	ECKDES102MD	0.001mfd, WV-100V, ±20%, Ceramic	1	C
C804	ECEA25V220L	220mfd, WV-25V Electrolytic	1	B

VARIABLE RESISTORS and VARIABLE CAPACITORS

RV301	EVLS3AA00B32	Separation Control	1	C
RV501	EVA66AA06G15	Balance Control	1	B
RV502,503	EVBR5AA06B54	Loudness Control	1	B
RV504~507	ERBR0AA06V54	Tone Control	2	B
RV601,602	EVLS3AA00B14	DC Balance Control	2	C
RV603,604	EVLS3AA00B52	ICQ Control	2	C
CV101~103,201 CT101~103 801 CT201,801	ECV5YR33X29S	Variable Capacitor	1	C

COMPONENT COMBINATIONS

CR201	EXAF203Z471	0.01mfd, 0.01mfd & 470ohm	1	C
CR202	EXA5DL04C	10.7MHz Filter	1	C
CR301,302	EXA6FC04	19kHz Filter	2	C

SWITCHES

S1,2	ESD1414	DX-LOCAL Switch	1	B
S3~8	SSRC364L25B1	Selector Switch	1	B
S9,10	SST13S	Mode Switch	1	B
S11,12	SST13S	Tape Monitor Switch	1	B
S13,14	SST13-1S	Stereo Mode Switch	1	B
S15,16	SST13S	Loudness Control Switch	1	B
S17	SSP19S	Voltage Adjust Switch	1	B

CHASSIS PARTS

CH1	XBA1E05NR5	Fuse 0.5A	1	A
CH2	XBA1E10NR5	Fuse 1A	1	A
CH3	XAM13T125	Stereo Eye 3V 40mA	1	A
CH4	XAM43T	Pilot Lamp 12V 300mA	3	A
CH5	SSM13	Tuning Meter	1	B
CH6	SJA41	AC Cord	1	C
CH7	SJF3201	2P Pin Jack	2	C
CH8	SJF3405	4P Pin Jack	2	C
CH9	RJF4202	Antenna Terminal	2	C
CH10	SJS9205	AC Socket	1	C
CH11	SJS13-1	DIN Socket	1	C
CH12	SJS4303	3P Player Power Source Socket	1	C
CH13	SDA11	Slider	1	C
CH14	SDE53	Poly Slider	1	C
CH15	SDP1031	Sub Slider	1	C
CH16	RDZ07-1	Dial Cord	60	A
CH17	RDD2080-1S	VC Drum	1	C
CH18	RDS417	Dial Spring	1	C
CH19	SDT6251	Tuning Shaft	1	C
CH20	SGT5350	Name Plate	1	Ⓝ C
CH21	SMY107	Heat Sink Plate	2	C
CH22	SMY55	Heat Sink Plate	1	C
CH23	SDE49	Pointer Screen	1	C
CH24	SJJ23	Headphones Jack	1	B

RECEIVER CABINET PARTS (MODEL SA-700A)

CA1	SKA2931	Cabinet	1	C
CA2	SKD1371	Dial Panel	1	C
CA3	SDE51-3	Smoked Panel	1	Ⓝ C
CA4	SBN227	Knob, Tuning	1	A
CA5	SBN229	Knob, Slide Volume	1	A
CA6	SBN231	Knob, Selector Switch	1	A
CA8	SBN241	Knob, Power Switch	1	A
CA9	SGW3251	Control Panel	1	C
	SGX495	Ornamental Bar (Left) — Control Panel Ass'y	1	C
	SGX493	Ornamental Bar (Right) — Control Panel Ass'y	1	C
	SGW3270	Ornamental Plate	1	C

Ref. No.	Part No.	Description	Per Set (Pcs.)	Remarks
CA10	XSN4+25FVCS	Chassis Holding Screw	4	C
CA11	SHG327	Leg	4	C
CA12	SGT5351	Specifications Plate	1	Ⓝ C
PLAYER PARTS (MODEL SL-700A)				
PL1	SKA4430	Cabinet	1	Ⓝ C
PL2	SJP2129	Phono Cord	1	C
PL3	SJP25	AC Cord (PX)	1	C
PL4	SKU3630	Bottom Cover	1	Ⓝ C
PL5	SGT5390	Specifications Plate	1	Ⓝ C
PL6	SYE159-1	Dust Cover	1	C
PL7	XMS31+13FVC	Bottom Cover Holding Screw	8	C
PL8	RHR111	Phono Cord Bushing	1	C
PL9	SHR937	AC Cord Bushing	1	C
PL10	EPC82SMBD	Cartridge, Magnetic	1	A
PL11	EPS31STSD	Stylus, Diamond	1	A
PL12	M6504-A	Capstan for 50 Hz	1	A
PL13	M6504-B	Capstan for 60 Hz	1	A
PL14	G3474-A	Spindle Ass'y	1	C
PL15	EM-42041-D	Phono Motor Ass'y	1	C
PL16	M4591-D	Idler Ass'y	1	A
PL17	PM-506S (a)	Pickup Ass'y	1	C
PL18	G2228-A	Turn Table Covering	1	C
PL19	G2227-A	Turn Table Ass'y	1	C
PL20	SBH9053S	Hinge	4	C
SPEAKER PARTS (MODEL SB-150D)				
SP1	SKA4411	Cabinet (SP10~12 & Bottom Board)	2	C
SP2	EAS16PL56SB	Speaker, Woofer	2	A
SP3	EAS5HH31SG	Speaker, Tweeter	2	A
SP4	SLCA271K	Choke Coil	2	C
SP5	SGT5371	Specifications Plate	2	C
SP6	ECEB50YR68	Capacitor 0.68mfd WV-50V	2	C
SP7	SMN451	Terminal Plate (Speaker Terminal)	2	C
	SNE905	Terminal (Speaker Terminal)	2	C
	SJF3101	Rivet (Speaker Terminal)	2	C
SP8	XMS31+25FVC	Screw, Back Board	24	C
SP9	SKW161	Bracket	2	C

Ref. No.	Part No.	Description	Per Set (Pcs.)	Remarks
PACKING MATERIALS				
PA1	SPG319	Packing Case, Outer (Center Unit)	1	Ⓝ C
PA2	SPN3159-1	Packing Case, Inner (Center Unit)	1	Ⓝ C
PA3	SPG321	Packing Case, Outer (Speaker)	1	Ⓝ C
PA4	SPN3161-1	Packing Case, Inner (Speaker)	1	Ⓝ C
PA5	SPN3163	Top Pad & Bottom Pad (Speaker)	2	Ⓝ C
PA6	SPN3247	Top Pad (Dust Cover)	1	Ⓝ C
PA7	SPN2231	Side Pad (Receiver)	2	C
PA8	SPN2225-2	Side Pad (Player)	2	C
PA9	SPN2767	Partition	1	C
PA10	SPN3165	Corner Pad	2	Ⓝ C
PA11	SPN3167	Pad (Dust Cover)	1	Ⓝ C
PA12	SPN2771	Cord Case	1	C
PA13	SPPH7	Poly Bag (Center Unit)	2	C
PA14	SPH77	Protection Bag, AC Cord	2	C
PA15	SPP53-1	Protection Bag (Player)	1	C
PA16	SPP129	Protection Bag (Receiver)	1	C
PA17	SPP173	Protection Bag (Speaker)	1	C
ACCESSORIES				
A1	M6504-A	Capstan for 50 Hz	1	A
	M6504-B	Capstan for 60 Hz	(1)	A
A2	EPS10	45 r.p.m. Adaptor	1	A
A3	SPB299-1	Felt for Speaker Cabinet	1	B
A4	SJP2109	Speaker Cord	2	B
A5	SQX159	Schematic Diagram	1	B
A6	SPB5001	Oil	1	C
A7	SQF413	Printed Matter	1	C
	SQX5217	Instruction Book	(1)	Ⓝ C
	SQX9013-1	Factory Servicenters List	(1)	C
SPEAKER PARTS				
SP10	SGW3970	Grill	2	C
SP11	SGS213-3	Net	2	C
SP12	SGB295	Badge	2	C

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